Optimasi Fermentasi Tepung Jagung Putih (*Zea mays var. amylacea*) – Bekatul Termodifikasi Dengan *Lactobacillus plantarum* dan Potensinya sebagai Pengganti Tepung Terigu dalam Pembuatan Kue Kering

Optimization Fermentation of Modified White Corn (*Zea mays var. amylacea*) Rice bran Flour Using *Lactobacillus plantarum* and its Potential as Wheat Flour Substitute in the Production of Cookies

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ABSTRACT

White corn (*Zea mays* var. *Amylacea*) has the potential as a second basic food after rice because of its carbohydrate contents, but the lack of protein content in food and limited application of white corn makes it is still not widely used. The addition of rice bran which is rich in protein and fatty acids to white corn flour then fermented by lactic acid bacteria can help improve the quality of maize. The purpose of this study were : [1] To optimize the production of modified corn flour with the addition of rice bran concentration of 25 ; 37,5 and 50% and fermented with *Lactobacillus plantarum* 3704 with a dose of 0,5 ; 1 ; 1,5 and 2% for 48 hours, [2] To identify the fatty acid component in fermented rice bran-white corn flour, and [3] to apply it in the production of cookies. Dissolved protein content from fermented flour were analyzed using factorial treatment design of a 3×4 with the basic design of Randomized Block Design (RBD) with 3 replications. To compare the differences between the treatment means, Honestly Significant Differences (HSD) test was used with 5% of level significance. Based on the results, the optimum conditions obtained at a dose of 1% bacteria and 37,5% addition of rice bran with soluble protein content 14,92%. Fatty acid identification in fermented flour showed the dominant fatty acids are as follows : linoleic acid (36,84%), oleic acid (34,44%), and palmitic acid (22,76%), respectively. Hedonic test showed that the most preferred cookies production are using 10% substitution of fermented flour.

Keywords : White corn, rice bran, *Lactobacillus plantarum*, optimization